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EXAMINER

DIVECHA, KAMAL B

ART UNIT PAPER NUMBER

2151

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,353

Applicant(s)

DIAS ET AL.

Examiner

KAMAL B. DIVECHA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

Claims 1, 3-8 are pending in this application.

Applicant's arguments filed August 18, 2006 have been fully considered but they are not persuasive.

In response filed applicant argues in substance that:

- a. Dutta fails to teach, *inter alia*, wherein the any one server out of said plurality of individual servers is adapted to issue the load balancing instructions that apply to any of the plurality of individual servers (remarks, page 7).

In response to argument [a], Examiner disagrees in light of the following:

Claim 1 recites:

A method for enhancing load controlling of a Web site including a plurality of individual servers and a Network Control Scheduler (NCS), said Web site using Hyper Text Transport Protocol (HTTP), said method comprising the steps of:

in any one server out of said plurality of individual servers:

issuing load balancing instructions to said NCS by passing said load balancing instructions to said NCS in a NCS-control HTTP header, including the steps of:

- including directives that must be obeyed by said NCS; and
- optionally, including a filter to limit a scope of application of said directives;
- receiving said load balancing instructions in said NCS from said any one server; and

- complying with said load balancing instructions upon receipt,

wherein the any one server out of said plurality of individual servers is adapted to issue the load balancing instructions that apply to any of the plurality of individual servers.

The claimed invention discloses the process wherein load balancing instructions are issued in any one server out of plurality of servers in an http packet or message, wherein the packet includes the directive or instruction for load balancing and a filter, receiving the packet at the NCS, a scheduler or load balancer, from any one server, and complying with the instructions

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in the packet, wherein any one server is adapted to issue load balancing instructions that apply to any of the plurality of individual server.

Dutta clearly teaches the process wherein the load balancing instructions including the filter are issued to the firewall, wherein the firewall complies with the instructions in the packet, which is applied to the server which issued the instructions (col. 5 L14-21, i.e. server A is interpreted as any one server out of server A and B, which sends a message instructing firewall to reduce amount of traffic to server A, again any one server out of server A and B, the teaching that is sufficient enough to be interpreted on claim 1).

Therefore, Dutta clearly teaches the above argued subject matter, as it is evident from the numerous teachings previously and currently cited that the provision of the argued subject matter was widely implemented in the networking art. Thus applicant's arguments drawn toward distinction of the claimed invention and the prior art teachings on this point are considered not persuasive.

b. Dutta also fails to teach an NCS-control HTTP header that includes both directives and a filter (remarks, page 7, page 8).

In response to applicant's argument [a], Examiner disagrees in light of following:

Applicant's specification states (pg. 7 line 14 to pg. 8 line 7):

"...the filter operates on HTTP objects, such as the origin server, known by its DNS name or IP address, the client, the HTTP headers, the cookies (as described in RFC 2109), and the URL...There are three types of filters, i.e., URL, Cookie, Headers, depending on the object it operates on..."

Therefore, based on the above description, headers, URL and cookie can also be interpreted as a filter.

Dutta explicitly discloses, “a firewall regulates the flow of packetized information. A packet includes a header and a payload. The header includes header information (header parameters), which can include a source and destination address for the packet, as well as source and destination port numbers, a protocol number, a physical location identifier, flags, a priority indicator, etc...a known firewall filters a packet based upon the packet’s header parameters (Dutta, column 1 lines 29-52).

Dutta’s system is fully and/or implicitly based on http model because it includes network and network are known to utilize http protocol, which is known to include http header that includes an action or data and a filter.

Dutta teaches sending a message to the firewall to either generally reduce the amount of traffic being directed to server A, or else specifically to redirect the traffic being sent in accordance with load balancing rule X to another server (see col. 5 L9-29).

In order for the server to inform the firewall to redirect the traffic in accordance with rule X, the server has to send a message including redirection code (i.e. a load balancing instruction) associated with rule X to another server.

The firewall would then receive the message including the redirection code and criteria, or specifically, rule X, i.e. a filter, which is loaded onto the firewall and applied to traffic with equivalent characteristics.

Therefore, Dutta does teach the process of sending a message including both a directive and a filter to the firewall.

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c. There is no motivation or suggestion to combine the Dutta and Pavan references and argues that Pavan is in a field of art that is non-analogous to that of Dutta and further argues that Office action has failed to prove a prima facie case of obviousness (remarks, page 8-9).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, one of ordinary skilled in the art would have been motivated because it would have controlled and load balanced the network traffic, managed the queue of packets and improved the network congestion (Dutta, col. 5 L18-29; Pavan, see abstract, col. 3 L56 to col. 4 L55).

In response to applicant's argument that Pavan is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

In this case, Pavan is from the same field of endeavor as applicants claimed invention because Pavan discloses a network scheduler for real time applications, which supports

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scheduling of network packets (scheduling of network packets inherently load balances the traffic). It further discloses the HOLD and RELEASE primitives (as used by the applicant) to control services of the queues of packets (see Abstract).

Also, note that the network scheduler and the load balancer are analogous as is known in the art. Both of the technologies are interoperable.

Furthermore, Applicant uses the technology of scheduling that is similar to Pavan and technology of load balancing that is similar to Dutta. If Pavan was non-analogous based on the applicant's argument, then the claimed invention in the instant application would not meet industrial application and would be inoperable.

Examiner has clearly established a *prima facie* case of obviousness as follows:

The three basic criteria for establishing a *prima facie* case of obviousness that must be met are (see MPEP § 2143).

i. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skilled in the art, to modify the reference to combine reference teachings.

ii. There must be a reasonable expectation of success.

iii. The prior art reference must teach or suggest all the claim limitations.

Claim 3 stands rejected in further view of Pavan as follows:

As per claim 3, Dutta discloses the process wherein the instructions (directives) include flow-control instructions (directives, Dutta, col. 5 L18-29), however, Dutta does not disclose sharing and NCS-queuing (queuing) directives.

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Pavan, from the same field of endeavor, discloses a flow control directive (col. 4 L51-54: read scheduling of packets as flow control mechanism); sharing directives (col. 4 L5-6: scheduler capable of to schedule the use of shared resources); and NCS-queuing directives (col. 4L14-20 and fig. 6 and col. 5 L23-50).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Dutta in view of Pavan, in order to include sharing and queuing directives, since Pavan discloses flow-control directive, sharing directive, and NCS-queuing directive.

One of ordinary skilled in the art would have been motivated because it would have controlled and load balanced the network traffic, managed the queue of packets and improved the network congestion (Dutta, col. 5 L18-29 and Pavan, see abstract, col. 3 L56 to col. 4 L55).

Therefore, the combination of Dutta and Pavan would indeed produce the same results as disclosed by the instant claim.

d. The cited references do not teach or suggest that the share directive is performed by depositing an HTTP header into requests having a matching filter that are issued from the NCS to any server (remarks, page 9 and feature of claim 5).

In response to argument [d], Examiner disagrees.

Claim 5 recites:

The method according to claim 4 wherein said sharing directives include: a share directive aimed at enabling an information sharing within all members of said plurality of individual servers and said NCS by depositing an HTTP header in the NCS that is added to all subsequent requests having a matching filter that are issued from the NCS to any server; and clear directive aimed at clearing a previous said information sharing.

As set forth in the rejection, Colby discloses a broadcast manager capable of sending and receiving system messages comprising: a share message for enabling information sharing within all members (interpreted as share directive: col. 3 L32-38, col. 4L54-55, col. 8 L37-51; col. 14 L45-50); and a clear message for stopping or canceling the shared information (interpreted as clear directive: col. 15 L15-20; col. 4L43-46; col. 16 L40-44).

Dutta teaches the process of load balancing wherein the rules are loaded into the firewall and applied to the packets with some characteristics (see col. 5 L9-30).

Dutta when combined with Colby results in depositing or loading the rule X, specifically, loading the share and clear directive or rule into the firewall, which will be applied to the future packets with some characteristics, by transmitting the message to the firewall, wherein the message would include the share or clear directive or rule.

Therefore the combination of Dutta and Pavan explicitly discloses the claimed subject matter.

DETAILED ACTION

Claims 1, 3-8 are presented for re-examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Dutta et al. (hereinafter Dutta, U. S. Patent No. 6,546,423 B1).

As per claim 1, Dutta discloses a method for enhancing load controlling of a web site including a plurality of individual servers (fig. 1 item #201, 202) and a network control scheduler (fig. 1 item #203, fig. 2 item #305), said web site using hyper text transport protocol, said method comprising the steps of: in any one server out of said plurality of individual servers: issuing load balancing instructions to said NCS by passing said load balancing instructions to said NCS in a NCS-controlled HTTP header, including the steps of including directives that must be obeyed by said NCS (col. 5 L14-21, i.e. server A is interpreted as any one server out of server A and B, which sends a message instructing firewall to reduce amount of traffic to server A) and including a filter to limit a scope of application of said directives (col. 1 L 29-52); receiving said load balancing instructions in said NCS from said any one server (col. 5 L23-30); and complying with said load balancing instructions upon receipt (col. 5 L18-29, firewall receives the instruction to reduce the amount of traffic or else specifically redirect the traffic to another server

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from server A, and directs the traffic to another server, i.e. to server B), wherein the any one server out of said plurality of individual servers is adapted to issue the load balancing instructions (server A of Dutta's system) that apply to any of the plurality of individual servers (server B of Dutta's system, server B is affected since server A's traffic is now directed to server B based on the instruction or message from server A, wherein message is also applied to server which sent the message to firewall).

As per claims 7-8, they do not teach or further define over the limitations in claim 1. Therefore claims 7-8 are rejected for the same reasons as set forth in claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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2. Claim 3 is rejected under 35 U.S.C. 103(a) as being obvious over Dutta et al. (hereinafter Dutta, U. S. Patent No. 6,546,423 B1) in view of Pavan et al. (hereinafter Pavan, U. S. Patent No. 6,801,943 B1).

As per claim 3, Dutta discloses the process wherein the instructions (directives) include flow-control instructions (directives, Dutta, col. 5 L18-29), however, Dutta does not disclose the directives known as sharing and NCS-queuing (queuing) directives.

Pavan, from the same field of endeavor, discloses a flow control directive (col. 4 L51-54: read scheduling of packets as flow control mechanism); sharing directives (col. 4 L5-6: scheduler capable of to schedule the use of shared resources); and NCS-queuing directives (col. 4L14-20 and fig. 6 and col. 5 L23-50).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Dutta in view of Pavan, in order to include sharing and queuing directives, since Pavan discloses flow-control directive, sharing directive, and NCS-queuing directive.

One of ordinary skilled in the art would have been motivated because it would have controlled and load balanced the network traffic, managed the queue of packets and improved the network congestion (Dutta, col. 5 L18-29 and Pavan, see abstract, col. 3 L56 to col. 4 L55).

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3. Claim 4 is rejected under 35 U.S.C. 103(a) as being obvious over Dutta et al. (hereinafter Dutta, U. S. Patent No. 6,546,423 B1) in view of Pavan et al. (hereinafter Pavan, U. S. Patent No. 6,801,943 B1) in view of Millard (Pub. No.: 2002/0087282 A1), and further in view of Subramanian et al. (Pub. No.: US 2002/0194211 A1).

As per claim 4, Dutta in view of Pavan discloses the process of decreasing amount of traffic directed to server A (i.e. interpreted as a decrease rate directive to decrease a rate at which requests to said any one server are sent, Dutta col. 5 L18-29), however Dutta and Pavan does not explicitly disclose the process wherein said flow-control directives include an increase-rate directive to require said NCS to increase a rate at which requests to said any one server are sent; an increase-window directive to require said NCS to increase a number of jobs allowed to be simultaneously processed in said any one server; and a decrease-window directive to require said NCS to decrease a number of jobs allowed to be simultaneously processed in said any one server.

Millard, from the same field of endeavor teaches the process of increasing/decreasing rate at which requests are sent to the server (interpreted as increase rate directive, pg. 1-2 block #9, pg. 5 block #42-48). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Dutta and Pavan, in view of Millard, to include the increase rate directive for increasing the a rate at which requests to any one server are sent, since Millard teaches the process of increasing and decreasing the rate at which requests are sent to the server.

One of ordinary skilled in the art would have been motivated because it would have increased or decreased the stress on the target server or machine (Millard, pg. 1-2 block #9).

However, Millard does not disclose the process wherein flow-control directives include an increase-window directive to require said NCS to increase a number of jobs allowed to be simultaneously processed in said any one server and a decrease-window directive to require said NCS to decrease a number of jobs allowed to be simultaneously processed in any one server.

Subramanian, from the same field of endeavor discloses the process of increasing and reducing the number of concurrent requests (read as number of jobs allowed to be processed simultaneously, pg. 11 block #157-159). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to Dutta, Pavan and Millard, in view of Subramanian, to include the process of increasing or decreasing the number of jobs or requests allowed to be processed simultaneously in any one server, since Subramanian teaches the process of increasing or decreasing number of concurrent jobs to be processed by a server.

One of ordinary skilled in the art would have been motivated because it would have avoided overloading or congestion in the system with too many requests (Subramanian, pg. 11 block #159).

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4. Claims 5-6 is rejected under 35 U.S.C. 103(a) as being obvious over Dutta et al. (hereinafter Dutta, U. S. Patent No. 6,546,423 B1) in view of Pavan et al. (hereinafter Pavan, U. S. Patent No. 6,801,943 B1) in view of Millard (Pub. No.: 2002/0087282 A1) in view of Subramanian et al. (Pub. No.: US 2002/0194211 A1) and further in view of Colby et al. (hereinafter Colby, U. S. Patent No. 6,625,643 B1).

As per claim 5, Dutta, Pavan and Subramanian discloses depositing the http headers and/or directives included in the message to the firewall that is added or applied to packets with some equivalent characteristics (Dutta, col. 5 L9-29), however Dutta, Pavan and Subramanian does not disclose the process aimed at enabling an information sharing within all members of said plurality of individual servers and said NC\$ (i.e. shared directive) and the process aimed at clearing previous said information sharing (i.e. clear directive).

Colby discloses a broadcast manager capable of sending and receiving system messages comprising: a share message for enabling information sharing within all members (interpreted as share directive: col. 3 L32-38, col. 4L54-55, col. 8 L37-51; col. 14 L45-50); and a clear message for stopping or canceling the shared information (interpreted as clear directive: col. 15 L15-20; col. 4L43-46; col. 16 L40-44). Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to incorporate the teaching of Colby as stated above with Dutta, Pavan and Subramanian in order to enable information sharing within all members of plurality of servers and clearing a previous said information sharing.

One of ordinary skilled in the art would have been motivated because it would keep the system (i.e. load balancer and servers) in synchronization (Colby, col. 9 L60-62).

As per claim 6, Dutta does not disclose the process wherein NCS-queuing directives including: a lock directive aimed at locking resources identified by said filter and an unlock directive aimed at releasing previously locked said resources.

Pavan, from the same field of endeavor discloses NCS-queuing directives including: a lock directive aimed at locking resources identified by said filter (Pavan, read as HOLD directive, col. 5L18-42, fig. 2 item #38) and an unlock directive aimed at releasing previously locked said resources (Pavan, read as RELEASE directive, col. 5L18-42, fig. 2 item #34).

Therefore, it would have been obvious to a person of ordinary skilled in the art at the time the invention was made to modify Dutta in view of Pavan, in order to provide lock directive for locking resources and unlock directive for releasing locked resources, since Pavan teaches hold and Release directive.

One of ordinary skilled in the art would have been motivated because it would have avoided the network congestion by controlling the service requests in a service queued and it would have controlled the behavior of the load-balancer or scheduler and would have ensured that the user-level scheduling requirements are met (Pavan, col. 5 L17-22, col. 6 L7-12).

Additional References

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Evans et al., U. S. Patent No. 6,061,363.
- b. Wolff, U. S. Patent No. 6,886,035 B2: Dynamic Load balancing of a network of client and server computers: teaches the process of issuing load balancing instructions from a clustered node to load balancer.

Conclusion

In order to overcome the 35 U.S.C. 102 rejection, applicant is advised to consider incorporating the subject matter in claims 3-6 into the independent claims.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

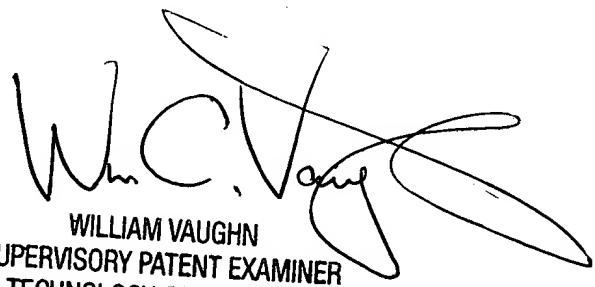
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is 571-272-5863. The examiner can normally be reached on Increased Flex Work Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Kamal Divecha
Art Unit 2151
October 26, 2006.


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